**1.**  
ALTER TABLE course ADD CONSTRAINT pk\_course PRIMARY KEY (code),

ALTER TABLE offering ADD CONSTRAINT pk\_offering PRIMARY KEY (offer\_id),

ALTER TABLE offering ADD CONSTRAINT fk\_offering\_course FOREIGN KEY (course\_code) REFERENCES course (code),

ALTER TABLE offering\_mode ADD CONSTRAINT fk\_offering\_mode\_offer\_id FOREIGN KEY (offer\_id) REFERENCES offering (offer\_id),

ALTER TABLE student ADD CONSTRAINT pk\_student PRIMARY KEY (student\_id)

**2.**  
ALTER TABLE offering\_mode ADD CONSTRAINT check\_mode CHECK (mode IN ('INT','DIS') )

**3.**

CREATE TABLE prereq (

prereq\_code int not null,

offer\_id int not null,

course\_code text not null,

CONSTRAINT pk\_prereq\_code PRIMARY KEY (offer\_id, prereq\_code),

CONSTRAINT fk\_course\_code FOREIGN KEY (course\_code) REFERENCES offering (course\_code))

**4.**

CREATE TABLE enrolled (

student\_id int not null,

course\_code text not null,

offer\_id int not null,

CONSTRAINT pk\_enrollment PRIMARY KEY (student\_id, offer\_id),

CONSTRAINT fk\_student\_id FOREIGN KEY (student\_id) REFERENCES student (student\_id),

CONSTRAINT fk\_course\_code FOREIGN KEY (course\_code) REFERENCES course (code))

**5.**

WITH current\_students AS (

SELECT e.student\_id, e.offer\_id, e.course\_code, p.offer\_id

FROM enrolled

JOIN prereq p ON p.course\_code = e.course\_code

JOIN offering o ON o.offer\_id = p.offer\_id

WHERE o.year = 2021 OR o.year = 2020

),

unmet\_2021 AS (

SELECT e.student\_id, e.course\_code, e.offer\_id

FROM enrolled e

JOIN current\_students cs ON cs.student\_id = e.student\_id

WHERE NOT EXISTS (

SELECT 1 from enrolled lastyear

JOIN current\_students cs ON cs.student\_id = lastyear.student\_id

JOIN current\_students cs ON cs.p.offer\_id = lastyear.offer\_id

WHERE lastyear.year = 2020

AND lastyear.student\_id = e.student\_id)

)

SELECT

student\_id,

course\_code

FROM unmet\_2021

GROUP BY student\_id